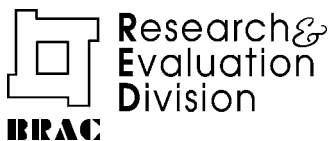# How Sustainable is the Gain in Food Consumption of the CFPR/TUP Beneficiaries?

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This working paper is published under the BRAC-AKFC Learning Partnership Project for CFPR with funding support from the Canadian International Development Agency (CIDA). The goal of the project is to contribute to improved poverty reduction and poverty targeting policies and practices. This partnership project supports the generation and dissemination of lessons, models, methodologies and best practices from CFPR to other organizations and practitioners around the world with an interest in reaching and serving the needs of the ultra poor.

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FOREWORD

Over a quarter of Bangladesh's people live in extreme poverty, not being able to meet even the barest of the basic needs. They spend most of their meagre, unreliable earnings on food and yet fail to fulfil the minimum calorie intake needed to stave off malnutrition. They are consequently in frequent poor health causing further drain on their meagre resources due to loss of income and health expenses. More often than not, the extreme poor are invisible even in their own communities, living on other peoples' land, having no one to speak up for them or assist them in ensuring their rights. Extreme poverty also has a clear gendered face – they are mostly women who are dispossessed widows, and abandoned.

The extreme poor are thus caught in a vicious trap and the story of denial and injustices tend to continue over generations for a large majority of them. Thus, a vast majority of the extreme poor in Bangladesh are chronically so. The constraints they face in escaping extreme poverty are interlocked in ways that are different from those who are moderately poor. This challenges us to rethink our existing development strategies and interventions for the extreme poor, and come up with better ones that work for them. This is the challenge that drove BRAC to initiate an experimental programme since 2002 called, 'Challenging the Frontiers of Poverty Reduction: Targeting the ultra poor programme.' The idea to address the constraints that they face in asset building, in improving their health, in educating their children, in getting their voices heard, in a comprehensive manner so that they too can aspire, plan, and inch their way out of poverty.

The extreme poor have not only been bypassed by most development programmes, but also by mainstream development research. We need to know much more about their lives, struggles, and lived experiences. We need to understand better why such extreme poverty persists for so many of them for so long, often over generations. Without such knowledge, we cannot stand by their side and help in their struggles to overcome their state.

I am pleased that BRAC's Research and Evaluation Division has taken up the challenge of beginning to address some of these development knowledge gaps through serious research and reflection. In order to share the findings from research on extreme poverty, the 'CFPR Working Paper Series' has been initiated. This is being funded by CIDA through the 'BRAC-Aga Khan Foundation Canada Learning Partnership for CFPR' project. I thank CIDA and AKFC for supporting the dissemination of our research on extreme poverty.

I hope this working paper series will benefit development academics, researchers, and practitioners in not only gaining more knowledge but also in inspiring actions against extreme poverty in Bangladesh and elsewhere.

Fazle Hasan Abed
Chairperson, BRAC

How Sustainable is the Gain in food Consumption of the CFPR/TUP Beneficiaries?

Farhana Haseen and Munshi Sulaiman

ABSTRACT

Despite some remarkable improvements in nutritional status, malnutrition in Bangladesh is still highly prevalent, especially among the poorest. A number of initiatives are taking place that address the food intake of the ultra poor, either directly or indirectly. Challenging the Frontiers of Poverty Reduction/ Targeting the Ultra Poor (CFPR/TUP) has become the key programme for BRAC to help the most disadvantaged population. To provide a clear pathway of graduation to the beneficiaries after two years of intensive supports, this programme was launched in 2002 in three northern districts of Bangladesh. Three rounds of surveys were conducted – prior to intervention (in 2002), after two years of intervention (in 2004), and two years after the termination of active intervention (in 2006) – to assess whether CFPR/TUP intervention can secure a sustainable impact on food consumption of the beneficiaries. Food and calorie consumption among the beneficiary households increased significantly between 2002 and 2004 (during intervention) and the upward trend continued in 2006. Mean intakes of protein, fat, carbohydrate, calcium, iron, vitamin C, and retinol were higher in beneficiaries compared to non-beneficiaries both in 2004 and in 2006. Improvements were observed both in quantity and quality of food intake. Beneficiary households had more diversified diet with significant amount of animal source foods and spent more for food consumption.

INTRODUCTION

Despite some remarkable improvements in nutritional status, prevalence of malnutrition in Bangladesh is still one of the highest in the world (UNICEF 2004). Usually the poorest are the prime victim of this malnutrition (Deolalikar 2005) and are trapped into the vicious circle of malnutrition and poverty. Inadequate diet is usually identified as the immediate cause of malnutrition in Bangladesh (Haddad *et al.* 2004, HKI 2006). In terms of underlying causes, individual access to food is the most highlighted one though production is also mentioned among the other reasons of the low level of food intake (Hossain 2005). Food consumption is important not only for its significance on nutrition and productivity but also because of its ability to portray the socioeconomic status of the households. According to Bangladesh government statistics 40% of the population are living in absolute poverty (consuming 2,122 kcal/day) and one fifth (19.5%) are termed as hard core poor (consuming 1,805 kcal/day) (BBS 2006).

Among the policies on improving food intake of the poor, there are array of approaches. Some of them are *direct* food stump transfer to meet immediate needs while others take an *indirect* route through providing livelihood support (e.g. microfinance, asset transfer). An important concern for most of these approaches is to take differentiated model for different target groups. Differentiation within the poor is necessary since the ultra poor are not a group just poorer than the poor. There are several discontinuities between them, most of which are in the nutritional domain (Lipton 1988). Recognizing that the ultra poor are being bypassed by most of the development interventions, lately there has been a surge in the number of development initiatives targeting the ultra poor.

A recent study on relative efficacy of different approaches has shown the positive impact of targeted food transfer programmes in improving food consumption (Ahmed *et al.* 2007). However, the immediate impact from a particular approach is not necessarily sustained. For example, evaluating sustainability of Income Generation for Vulnerable Group Development (IGVGD) programme, Hashemi (2001) observed that while the programme was reasonably successful in bringing immediate improvement among the beneficiaries, some of the successes

were not sustained after 3 years from the end of support. Therefore, in policy formulation on reducing extreme poverty and hunger, evaluation of longer-term sustainability is imperative.

With the understanding that the ultra poor require a smart mix of promotional and protective support, BRAC has launched a poverty reduction programme called 'CFPR/TUP' programme in three northern districts of Bangladesh in 2002[1]. The principle objective of the programme is to reduce extreme poverty through establishing a sustainable livelihood composed of broader set of assets for the beneficiaries. The comprehensive support package consists of assets transfer, hands-on training, stipends, healthcare facilities, financial services, social support mobilization, awareness raising and confidence building. With a time-bound sequence of supports, the beneficiaries are expected to build a solid livelihood base. The support phase of the programme lasts for two years. There is a graduation path to help them participate and extract greater benefits from mainstream development initiatives.

Different impact assessments revealed that the programme participants have made significant improvement in their economic, social and health status (Rabbani *et al.* 2006; Ahmed and Rana 2005). However, hunger and chronic malnutrition are the most ruthless manifestation of ultra poverty. It is believed that these outcomes of the ultra poor can largely be addressed by bringing a change in their livelihood. To assess the impact of TUP programme on this front, detailed food consumption surveys were deemed necessary. Therefore, a baseline study including food consumption was conducted by RED (2002) before intervention in three northern districts (viz. Rangpur, Nilphamari and Kurigram) where the programme started in 2002. Baseline food and calorie intakes by the ultra poor households were remarkably lower than acceptable level.

In 2004, at the end of two-year intervention phase, an evaluation study was undertaken in the same

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[1] For details on the programme, refer to the Project Proposal and CFPR/TUP working papers available at www.brac.net/research

households, and a significant improvement in food consumption has been established (Haseen 2006). The study also showed sharp improvement in the quality and expenditure of food. However, the progress does not leave room for complacency. While a large leap during the support phase is a sign of reduced vulnerability, it is not a sufficient condition for long-term progress. Now the burning question is whether the improvement in livelihood is sound and secured enough to sustain the progress in food intake. After the removal of BRAC supports, maintenance of proper diet might become a challenge for many of the beneficiary households if they fail to take care of their enterprises successfully. On the other hand, if they are really on a solid livelihood base to secure growth, they can maintain or continue improvement in consumption at relative ease.

OBJECTIVE

This study attempted to identify food, energy and nutrient consumption and diet related changes that might be sustainable with the effect of economic changes on the usual diet of SUP households and individual members living in that households. Main objective was to assess whether intervention can secure a sustainable impact on food consumption, food habits, even after terminating active intervention in the households. While longer-term impact is an issue to be explored in future, this study looks at the changes after 2 years from the end of programme phase.

MATERIALS AND METHODS

The study was conducted in the three first-phase districts of CFPR/TUP programme. Two area offices from each district were included in this study (see Haseen 2006 for details on sampling procedure). The baseline survey took place between July and August 2002. A sub-sample of 400 households was selected from this baseline sample for building up a panel data on food consumption. Among them, 200 households were programme beneficiaries (Selected ultra poor or SUP in short) and the rest belonged to the NSUP (Not selected ultra poor) category.

A total of 373 households were available for analyzing their change in food consumption in 2004[2]. In 2006, the same 400 households were visited again to see the sustainability of changes. Thirty-five households could not be interviewed due to non-availability at home due to profession (4), migration (28), sickness (1) and death (2). Furthermore, 7 households ate at relatives home and did not cook at home for the last 3 days and, therefore, were excluded from analysis. After screening of consistency and missing information, the complete panel includes 331 households.

The woman of the households who was responsible for cooking and distribution was the respondent. For comparability, efforts were given to interview the same respondent in all the three surveys. The households whose heads were changed were also considered if the new heads were present in the respective households. The content of the surveys was kept similar to ensure comparability. In all the three waves, the survey was administered using the same questionnaire that used 3-day recall period for the consumption data. In addition, food consumption data by 24-hours recall method was collected in 2004 and 2006 in order to look at specific nutrient intake, explore intra household distribution and validate the findings from 3-day recall. The interviewers were trained at same extent in each and every phase. All interviewers received five days of training that was conducted in Dhaka head office and 3 days field test in the nearest slum.

During 24-hours recall method 360 households were made available for panel analysis from 2004 to 2006. Four households were traced out but could not be interviewed because of absence in the house for employment. Thirty-one households migrated permanently. Two households could not be interviewed due to illness and 3 households due to death of ultra poor member. SUP households were more receptive to interviews compared to NSUP (183 SUP and 177 NSUP) as expected. However, there was no household reported as unwilling from any group of households.

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[2] For details on the attrition, the readers are referred to Haseen (2006)

Household's dietary quantity and quality were evaluated using both 3-days and 24-hour recall methods. However, unless specified, the data presented in this report are based on 3-day recall method. Data of 24-hour recall was mostly used to look at the distribution of food among the individual members in the household. Information on diet related sustainability issue such as perceived change of overall and specific food in quantity during the last two years was collected using structured questionnaire and expenditure of food were gathered as measure of food security.

Throughout the report, we have presented the differences among the SUP and NSUP households over the three periods as well as between group differences at any specific point of time. Data analysis was performed using SPSS Version 10.0 and STATA Version 9.1. In analyzing programme impact and its sustainability alternative estimation techniques were used viz. difference in difference, panel regression with fixed time effect and propensity score matching.

RESULTS

This paper presents findings from survey that primarily intended an assessment of sustainability in food and nutrient consumption. Here we present results using two different methods. First, results from pre-intervention (2002), post-intervention (2004) and two years after the termination of active intervention (2006) are presented, to assess the trend in food and energy intake. Secondly, more precise method of collecting food, energy and nutrient intake information (24-hour recall) and self-rated changes are reported to observe change between 2004 and 2006. In addition, this study takes the opportunity to look at the determinant of sustainability and to explore different consumption behaviour of the ultra poor.

Trend in food consumption and poverty among the ultra poor

Trend in quantity of food intake

Comparison between the SUP and the NSUP at aggregate level shows a clear programme impact on food intake and its sustainability (Fig. 1). After the baseline food consumption survey (in 2002), a second consumption survey (in 2004) showed a clear improvement in both total food consumption (in gram) and energy (in calorie). Per capita energy consumption significantly increased from 2002 to 2004 and this upward trend continued in 2006 for SUP household.

Consumption of cereals (mainly rice- the staple food) as well as vegetables, fruits, and animal foods (fish, milk, egg) was higher among SUP households compared to NSUP households in both 2004 and 2006. During the intervention period, the SUP increased non-cereal food consumption. However, after the end of the programme, there has been noticeable increase in their cereal intake though non-cereal food intake either remained same as 2004 or declined. By weight, cereals constituted 61%, 48% and 54% of total food intake for the SUP in 2002, 2004 and 2006 respectively.

Figure 1. Trends of energy and total food consumption from 2002 to 2006
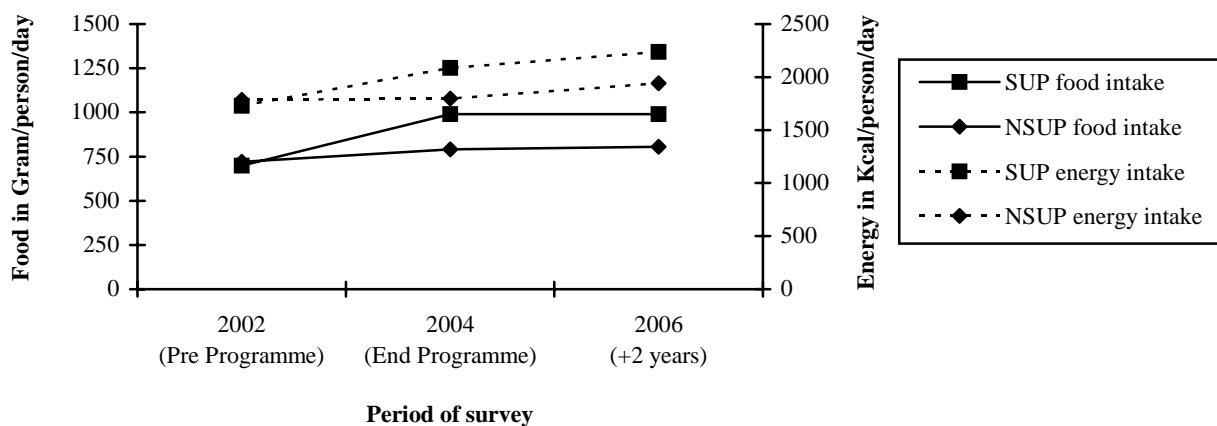
Animal food consumption increased gradually in both types of households although the differences between the two groups were significant in 2004 and 2006. Vegetable consumption increased significantly after intervention in SUP households and remained at that level. On the other hand, no statistical difference was found in NSUP households in vegetable consumption in any phase. Fruits consumption showed a similar pattern in SUP and NSUP households - a great improvement between 2002 and 2004 and a decline in 2006. However, the level of fruit intake was still higher in 2006 than the baseline level and the SUP consumed more fruits than the NSUP in both 2004 and 2006. Oil consumption did not show any big change in SUP households in any period (Table 1).

Table 1. Selected food intakes from 2002 to 2006

	Mean $\pm$ SD of intakes per day				
	Cereals (g)	Animal (g)	Vegetable (g)	Fruits (g)	Oil (g)
SUP (n=173)					
2002 (pre-programme)	429±178	23±51	217±221	13±50	9±8
2004 (End-programme)	474±158	78±103[a]	286±190[a]	134±186[a]	8±7
2006 (+2 years)	536±201[b,c]	84±86[b]	267±146[b]	68±114[b,c]	9±6
NSUP (n=158)					
2002 (pre-programme)	442±172	21±41	211±116	31±93	9±8
2004 (End-programme)	435±171	32±64	236±122	77±141[a]	6±5[a]
2006 (+2 years)	470±174	47±65[b]	231±131	29±61[c]	8±7[c]

[a] significant between 2002 and 2004; [b] significant between 2002 and 2006;
[c] significant between 2004 and 2006

Figure 2. Average intake of animal foods from 2002 to 2006
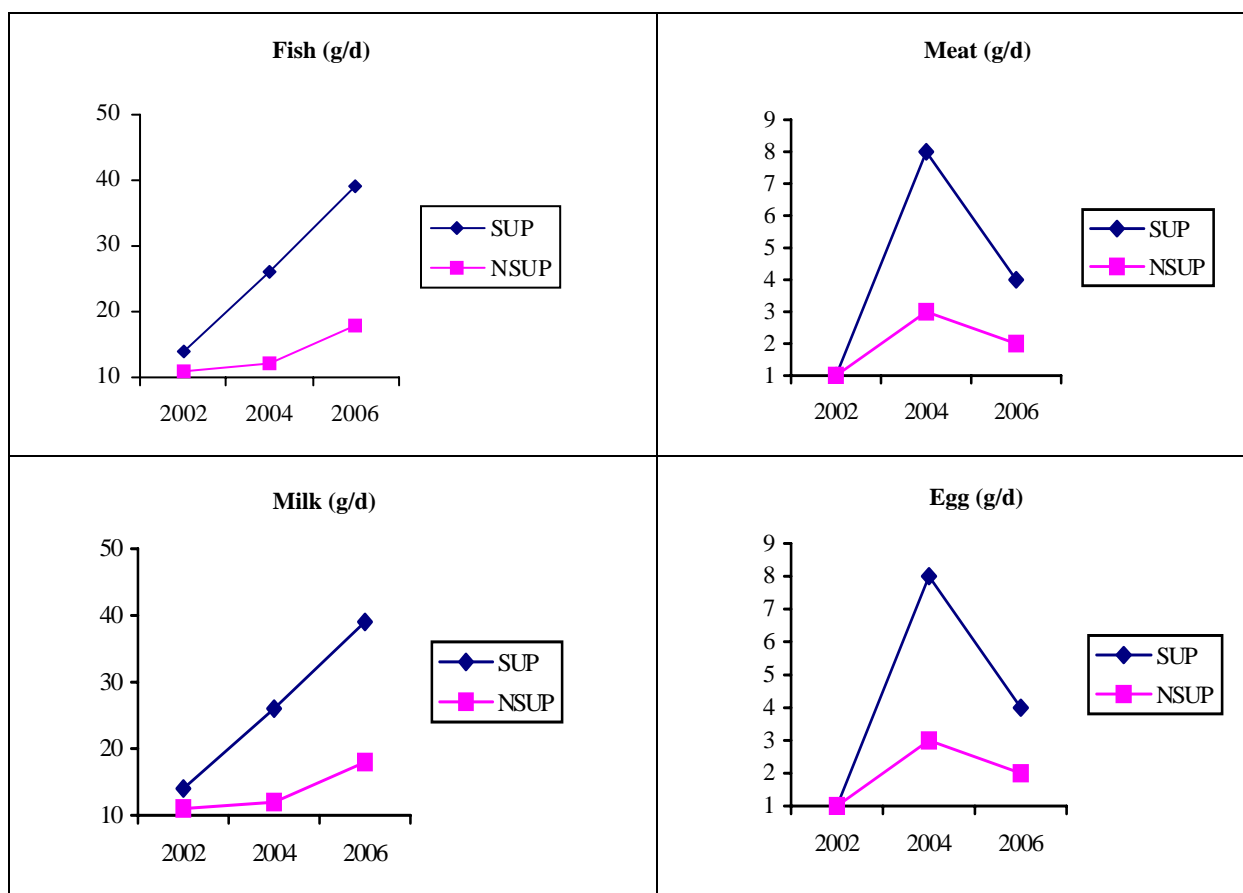
Among the animal food sources, fish was the most frequently consumed item for both SUP and NSUP households. A sharp increment of fish consumption from baseline was observed among the SUP households and the trend continued in 2006. NSUP households also showed an upward trend from 2004 to 2006 but the amount of intake was far below than that of SUP households. Milk and meat consumption also increased in 2004 and this level sustained in 2006. Consumption of egg showed ups-and-downs in both types of households. A remarkable increment in consumption of egg was observed after intervention but the trend shifted downward when no intervention was available; and the shifts are more dramatic for SUP households than NSUP (Fig. 2).

Trend in quality of food intake

As the food consumption status of a household improves, it is expected that much of the changes at the later stages will be in the quality of food. Therefore, Table 2 presents different types of indicators in different periods to see the changes in the dietary quality and diversity.

Table 2. Change in quality of food from 2002 to 2006

	2002 (Pre-programme)	2004 (End-programme)	2006 (+ 2 years)
Percentage of energy from cereals (%)			
SUP	84.4	78.7	82.0
NSUP	84.6	83.8	83.7
P	0.82	0.002	0.09
Percentage of energy from animal (%)			
SUP	1.4	3.1	3.4
NSUP	1.1	1.6	2.3
P	0.34	<0.001	0.001
Number of different food item (mean)			
SUP	3.8	5.5	4.4
NSUP	3.9	4.4	3.4
P	0.34	<0.001	<0.001

It is usually expected that as the economic status of the households improve, share of cereal in total energy intake will decrease. However, we did not find a similar pattern among the SUP households. Share of cereal in total energy decreased between 2002 and 2004 before increasing again in 2006. The NSUP show a stagnant pattern in their dependence on cereal for energy that was consistently around 84%. Nonetheless, a positive shift towards a balanced diet that had happened during the programme period did not continue.

Trend in poverty estimates

Though average food and calorie intakes of the SUP show considerable positive changes, these do not necessarily reflect the changes across or below the poverty lines. An account of poverty based on direct calorie intake (DCI) and food expenditure has been presented.

The households were categorized into extreme poor (<1800 kcal/person/day), moderate poor (between 1800 and 2122 kcal/person/day) and non-poor (on or above 2122 kcal/person/day) by DCI and food expenditure. According to these estimates (Table 3 and 4), between 28% and 19% of the ultra poor belonged to non-poor category by DCI and food expenditure in 2002.

Table 3. Poverty distribution according to DCI

	SUP			NSUP		
	2002	2004	2006	2002	2004	2006
Extreme poor (%)	48	37	28	49	54	45
Moderate poor (%)	24	22	15	22	17	17
Non-poor (%)	28	41	56	29	29	39
Poverty gap (%)	22.75	13.63	12.18	22.12	21.32	17.98
Squared poverty gap (%)	11.00	4.49	5.17	9.82	8.62	7.52

Note: Poverty gap and squared poverty gap have been calculated based on 2122 kcal mark

Distribution of food poverty among the STUP was almost identical to that of NSUP in 2002 measured either by DCI or food expenditure. However, the extent of poverty changed radically in favour of SUP in 2004. Positive changes in poverty estimates occurred between 2004 and 2006 as well. About 38% of SUP who were extreme poor in 2002 (by food expenditure) came out-of such poverty in 2004 and the figure rose to 55% in 2006. The declines in depth and severity of poverty (measured by poverty gap and squared poverty gap respectively) were also higher among SUP compared to NSUP.

Sustainability from alternative estimates

Results so far present the changes over the six years of the surveys based on data collected with 3-day recall period. The changes are being looked at by alternative data with the objective of cross-validation.

Table 4. Poverty distribution according to food expenditure[3]

	SUP			NSUP		
	2002	2004	2006	2002	2004	2006
Extreme poor (%)	64	40	29	64	62	44
Moderate poor (%)	18	9	14	16	9	17
Non-poor (%)	19	51	57	20	29	39
Poverty gap (%)	27.21	15.48	10.89	25.43	27.17	18.79
Squared poverty gap (%)	12.49	6.37	4.24	10.63	13.22	8.19

Note: Poverty gap and squared poverty gap have been calculated based on 2122 kcal mark

Sustainability of food intake by 24-hour recall period

Food consumption data by 24-hour recall period was collected in 2004 and 2006. Therefore, it only allows us to validate the sustainability of food intake status from the end of programme participation. Difference in difference (DD) estimates between SUP and NSUP from 2004 to 2006 are also presented.

An increasing trend was observed for almost all food items except fruits in SUP households (Table 5). Some changes occurred in NSUP households as well. Nonetheless, the only significant change by DD estimate was found in the consumption meat. However, the positive change is mostly because of a decline in meat consumption by NSUP.

Table 6 presents the average intakes of energy and selected nutrients by SUP and NSUP households Nutrient intake has changed positively over the past two years in SUP households. Only carotene showed a decline. However, in NSUP households, average consumption of energy, protein, carbohydrate and carotene decreased from 2004 to 2006.

The shares of carbohydrate, protein and fat in total energy intake remained almost the same in 2004 to 2006 (Table 7). Percentage of energy from carbohydrate was lower for SUP than NSUP in both the periods and the scenario is reversed when share of fat is considered. From 2002 greater proportion of SUP households could increase money spent for food compared to NSUP households.

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[3] To calculate poverty estimates based on food expenditure, first a *food poverty line* was drawn for 2122 kcal based on 2002 price. Afterwards, separate cutoff marks were estimated by discounting the food poverty line by proportion of kcal (i.e. in 2002 the food poverty line for the moderate poor was 11.21 taka/person/day. The line for the extreme poor was 9.54 taka/person/day). Rural food price indices were used to update the poverty lines in 2004 and 2006.

Table 5. Food consumed by SUP and NSUP households in 2004 and 2006 (g/person/day)

Food	SUP		NSUP		Dif in
	2004	2006	2004	2006	
Cereals	514 ±166	548±166	481±182	476±168	38.15
Animal foods					
Fish	13±27	21±35	7±18	18±38	-2.15
Meat	3±15	6±31	9±42	3±20	8.79**
Egg	2±10	2±9	0.6±5	1±8	-1.43
Milk	8±34	13±47	4±25	6±33	3.07
Vegetables					
Leafy	56±90	66±114	42±85	52±100	0.35
Non leafy	84±99	105±116	67±99	77±86	10.73
Fruits	45±138	28±66	30±106	21±62	-8.57
Fat/oil	6±5	6±7	4±5	4±4	0.21
Total intake	852±260	867±285	761±287	717±256	59

Note: data collected for 24-hour recall period; ** Significant at less than 5% level.

Table 8 presents the percentage of households whose per capita food and nutrient intakes were inadequate to meet the recommended dietary allowance (RDA) for Bangladesh (NNC 1999). Overall scenario is not very pleasing since about 80% to 90% of ultra poor population take inadequate amount of pulse, animal food, fruits, oil and protein. However, SUP households had a lower risk of inadequate intakes of all food and nutrients. Inadequacy was significantly lower among SUP than NSUP for vegetables, total food amount and protein in 2004. Their favourable situation further improved in 2006.

Sustainability of food intake by self-perception

Self-reported food adequacy and change are increasingly being used to cross-validate the findings from more 'objective' outcome. The respondents were asked whether they think their consumption of food in general and of specific food items have 'increased', 'decreased' or 'remained the same' over the preceding two years from the date of survey.

According to the respondents' perception, a far greater portion of the SUP has managed to improve their food intake unlike the NSUP. The data presented in Table 9 suggest that households on SUP groups had, to a large extent, maintained the level of consumption in specific food items after assistance from the CFPR/TUP ended, illustrating the sustainability and value of programme activities. Much greater proportion of SUP households than NSUP households reported in 2004 that they consumed more rice, fish, meat, egg,

milk fruits and vegetables than they used to consume two years back (pre-programme). The comparable figures remained similar in 2006. According to self-report consumption of rice had the highest likelihood of increase, followed by vegetables and fish.

Programme impact and sustainability

Calculating programme impact is a tricky business in a non-experimental setting. The objective in this section is not to give a 'true' estimate of impact rather looking at the regularity of impact.

Table 6. Energy and nutrients consumed by SUP and NSUP households in 2004 and 2006

Nutrient	SUP		NSUP		Dif in dif
	2004	2006	2004	2006	
Energy	2141±623	2244±690	1965±720	1924±671	144.04
Protein	47±16	49±17	43±18	42±18	3.46
Fat	12±8	12±9	8±6	9±6	0.33
CHO	450±135	469±144	419±154	407±141	30.85
Cal	278±252	342±436	206±166	312±486	-42.20
Iron	27±12	29±15	24±10	24±12	1.62
Vit C	55±54	86±126	43±47	66±125	7.40
Retinol	1083±1543	1240±2138	826±1352	968±1783	15.0
Carotene	6372±9191	4689±7955	4812±7972	3237±6559	-107.33

Note: data collected by 24-hour recall period;

Table 7. Dietary quality and food expenditures by SUP and NSUP group

	2004			2006		
	SUP	NSUP	P	SUP	NSUP	P
% of energy from						
Carbohydrate	84.1	85.3	.003	83.8	84.8	.011
Protein	8.7	8.7	.819	8.7	8.6	.448
Fat	4.9	3.8	.000	4.8	4.0	.003
Increased expenditure from 2002 (% of households)	67.1	44.9	.000	71.1	55.1	.002

Note: data collected by 24-hour recall period except expenditure

Table 8. Prevalence of inadequate intake of selected food and nutrients

Indicators	2004			2006		
	SUP	NSUP	P	SUP	NSUP	P
Cereals	44.3	53.7	0.07	38.8	53.1	0.01
Pulse	89.1	91.5	0.43	91.3	92.1	0.78
Animal food	92.9	96.6	0.12	87.4	91.0	0.28
Fruits	85.2	88.7	0.33	82.0	87.0	0.19
Vegetables and potato	42.1	57.6	0.01	39.9	47.5	0.15
Oil	97.8	97.7	0.96	96.2	98.9	0.10
Total intake	66.1	78.0	0.01	62.8	84.2	0.00
Total calorie	64.5	72.9	0.09	56.8	71.2	0.01
Total protein	88.5	94.4	0.05	86.3	90.4	0.23

Note: data collected by 24-hour recall period; The cut-off for adequacy were calculated based on NNC (1999)

Impact estimates by score matching

Propensity score matching is often used to estimate programme impact in quasi-experimental settings. Since the programme participation is non-random, the score matching tries to estimate the probability of participation of individual members (or households) by their observable characteristics[4]. Based on this predicted probability of participation, the outcome variable of the individual participants (SUP in our case) is compared with that of non-participants (NSUP) who have similar level of predicted probability of participation. Impact is the average of differences between the beneficiaries and 'similar group of non-beneficiaries'.

Table 9. Perceived change in quantity of food during last 2 years

Indicators	2004		2006	
	SUP	NSUP	SUP	NSUP
Overall change in the last 2 years				
Decreased	10.9	41.2	14.2	45.5
Stayed the same	4.4	42.4	8.2	36.4
Increased	84.7	16.4	77.6	18.2
Increased in specific food item				
Rice	86.3	26.0	79.8	18.8
Fish	73.2	14.7	71.0	15.9
Meat	45.9	7.3	53.6	9.7
Egg	66.7	8.5	56.3	12.5
Milk and milk product	64.5	13.0	62.3	9.0
Fruits	54.1	9.0	42.6	7.4
Vegetables	74.9	15.8	73.8	20.5

Table 10 presents the estimated impact of the programme between 2002 and 2004 ('immediate impact'); and between 2002 and 2006 ('extended impact'). If the extended impact was equal to immediate impact, it would show sustainability as a whole. In the same manner, higher extended impact is a reflection of positive lagged effect. If the extended effect were lower than the immediate effect, it would be a case of lack of sustainability.

In terms of calorie intake, the immediate impact is not only sustainable but also there is positive lagged effect. In other words, the programme puts the beneficiaries on a steeper growth trajectory of calorie intake. However, the situation is not so promising when food expenditure is considered. The extended impact on food expenditure is positive and close to the immediate impact but lower. The differences in changes in impact might be explained by either or a

mix of the following two scenarios viz. a) the beneficiaries are maintaining higher calorie with a lower food expenditure and b) the 'similar non-beneficiaries' have disproportionately increased their food expenditure over calorie. Nonetheless, this disparity calls for a closer look at the association between food expenditure and calorie.

Determinants of change after 'graduation'

Aggregate impact presented in the previous section shows the aggregate changes. However, all the households either SUP or NSUP do not fare similarly. Therefore, this paper intends to look at the determinants of sustainability of programme impact on food consumption of the participants. To explore this, the change in per capita calorie intake between 2004 (end of programme) and 2006 has been used as the dependent variable (Table 11). As mentioned earlier, the households surveyed for this study was a sub-sample of a larger impact assessment survey[5]. Therefore, information has been drawn from that panel to strengthen analysis.

Change in per capita calorie intake between 2002 and 2004 is negatively associated with the change after the end of programme and is the most significant factor. Other variables with significant exploratory power are earner-member ratio, change in self-perceived crisis coping ability, whether accumulated land, value of livestock and participation in social functions.

Are the gains equally shared within households?

One of the assumptions of development interventions, when targeted by households, is that resources are equally distributed within households. However, theories on intra-household bargaining and efficiency wage have shown that resources may not be equally distributed or even unequal distribution may in fact increase the total welfare for the extreme poor households.

This section looks at the food intake of individuals of different age groups using 24-hour recall data. In line with the findings from household averages, different groups of members (adult, adolescent and school aged children) living in SUP households consumed more food, energy and nutrient than NSUP households. In 2004 adult members of SUP

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[4] Annex 1 gives the estimates of predicted probabilities.

[5] The surveys were conducted in 2002 and 2005 covering a wide range of livelihood issues. See Rabbani et al (2006) for a discussion on the panel and programme impact on livelihood.

households consumed more cereals and vegetable, which were the main components of total food intake, than the same age group population of NSUP households. The differences were maintained in 2006 and, in addition, consumption of animal foods increased significantly in SUP households. Energy and protein intake among adult of SUP households was higher in SUP households compared to NSUP households in both 2004 and 2006.

Adolescents of SUP households were in good position in consumption than their counterparts in NSUP households, though the differences became slim for a few items in 2006. In contrast animal food consumption increased significantly among the adolescents in SUP households in 2006. Average energy intake was always significantly higher among adolescent in SUP households in both years. Compared to NSUP households, school aged children in SUP households consumed higher amount of cereals, vegetables and animal food. No significant improve-

ment was observed among the under-five children over the past two years, except vegetables.

Significant differences in the adult age group, unlike the under five children, raise a concern about the intra-household preferences. Given that most of the poverty is intergenerational in nature, the lack in improvement in food intake of under-five children is a cause of concern. To explore the intra-household distribution, an inequality index was formulated using adult equivalent scale (World Bank 2005). Single member households were dropped for obvious reason. Based on the equivalence scale, 'equitable share' of calorie of each member was calculated with equality assumed. The inequality index is the sum of absolute differences between the 'desired share' and actual share for each member in a household divided by household size. This inequality measure was regressed by per capita calorie of the household with others (Table 13).

Table 10. Average treatment effect on treated (radius method)

Timing of impact	Kcal/person/day		Food-expense/person/day	
Between 2002 and 2004	198.286	(85.012)	2.992	(1.071)
Between 2002 and 2006	246.250	(95.736)	2.738	(0.771)
Change in estimated impact between '02-'06 and '02-'04	47.964	(10.283)***	-0.254	(0.106)**

Note: Standard error in parenthesis; ** significant at 5%; *** significant at 1%

Table 11. Determinants of change in calorie intake of SUP between 2004 and 2006

	Coefficients	
Change in per capita calorie from '02 to '04	-0.498	(6.32)***
Family size in '06	-0.992	(0.02)
Earner member ratio in '06	532.155	(1.81)*
Maximum education in the HH '06	7.156	(0.26)
Number of income sources in '06	6.828	(0.09)
Increase in self-perceived coping ability (1=yes, 0 otherwise)	328.735	(1.68)*
Accumulated land (1=yes, 0 otherwise) by 2005	-296.486	(2.04)**
ln(Value of livestock in 2005)	-80.333	(2.21)**
Are invited in social functions (1=yes, 0 otherwise)	-418.900	(2.92)***
Amount spent on housing in 3 years from 2002	0.004	(0.27)
Received govt. social security benefits in 2005	-46.675	(0.21)
Had outstanding loan with Brac in 2005 (1=yes, 0 otherwise)	225.751	(1.54)
Constant	575.365	(1.45)
Observations	155	
R-squared	0.31	

Absolute value of t statistics in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

With increase in availability of food, the households become more equal in food distribution. Intra-household inequality is more prevalent among the SUP households. Larger households are likely to be more unequal in their food distribution. Households with higher level of education are less unequal. Increase in earner-member ratio reduces inequality.

If inequality is indeed a fact among the ultra poor, the obvious question is who are the individuals being discriminated in food allocation. We tried to look at this issue in Table 14. Here, the dependent variable is the difference between 'actual share' and 'equitable share' of food for each individual. Individuals were grouped by their age and the default age-group was the adult (15 to 65 years old). Both under-five and school going age groups show positive coefficients. Female are likely to have a lower share than the share they should have received if equitably distributed. However, there is hardly any difference in the estimates for the SUP and NSUP.

Table 12. Individual food and nutrient intake

	2004			2006		
	SUP	NSUP	P	SUP	NSUP	P
Adult (Above 20 years old)						
	(n=311)	(n=295)		(n=344)	(n=334)	
Total	811 ±292	696±290	0.00	793±293	657±236	0.00
Cereal	513±193	452±190	0.00	513±183	448±168	0.00
Vegetable	197±119	158±124	0.00	205±143	157±99	0.00
Animal	23±49	17±45	0.13	37±63	23±45	.001
Energy	2107±737	1837±742	0.00	2082±756	1796±668	0.00
Protein	45±18	40±18	0.00	45±19	39±17	0.00
Adolescent (13 to 19 years old)						
	(n=82)	(n=76)		(n=76)	(n=64)	
Total	778±268	680±261	.021	755±274	684±269	.126
Cereal	496±177	432±164	.020	485±173	433±165	.073
Vegetable	185±131	150±109	.072	199±135	189±122	.629
Animal food	27±48	29±65	.770	42±61	21±42	.021
Energy	2035±673	1748±643	.007	1985±697	1745±667	.041
Protein	45±17	40±18	.062	43±17	37±16	.019
School aged children (6 to 12 years old)						
	(n=118)	(n=98)		(n=132)	(n=95)	
Total	560±215	479±170	.003	583±240	501±218	.009
Cereal	334±114	302±97	.028	347±128	320±133	.123
Vegetable	135±83	106±82	.010	154±120	122±81	.022
Animal	23±41	13±36	.054	35±61	20±33	.025
Energy	1402±455	1228±379	.003	1442±529	1309±561	.070
Protein	31±13	27±11	.016	33±14	29±14	.042
Under five children (1 to 5 years old)						
	(n=79)	(n=64)		(n=62)	(n=60)	
Total	329±205	286±154	.166	310±193	264±154	.148
Cereal	182±104	178±87	.785	172±112	153±99	.327
Vegetable	82±71	76±72	.570	91±96	52±43	.004
Animal	9±22	8±22	.665	19±41	20±72	.879
Energy	789±414	729±361	.361	751±456	650±395	.193
Protein	17±10	16±9	.493	17±10	15±9	.202

Note: Using data from 24-hour recall

Table 13. Level of food intake and intra-household inequality

Dependent variable ⟶	Intra-household inequality
Per capita adult equivalent calorie	-0.001 (5.46)***
Year$_{06}$ (1= year 2006, 0=otherwise)	0.018 (1.90)*
SUP	0.033 (2.92)***
Household size	0.016 (3.60)***
Female headed household	-0.012 (1.06)
Maximum education of any member in HH	-0.006 (2.80)***
Earner member ratio	-0.065 (2.64)***
Constant	0.286 (9.41)***
Observations	578
Number of HHs	302
R-squared	0.14

Note: Estimates are with random effect.
Absolute value of t statistics in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 14. Discrimination against whom?

Variables	Coefficients	SUP	NSUP
Under-five children	0.106 (25.29)***	0.116 (19.39)***	0.097(15.51)***
Child (6 – 14 years old)	0.084 (27.11)***	0.090 (20.26)***	0.084(18.52)***
Old (>65 years old)	0.013 (1.90)*	-0.007 (0.62)	0.031(3.30)***
Female	-0.019 (7.20)***	-0.014 (3.74)***	-0.021(5.61)***
Constant	-0.005 (1.05)	-0.016 (2.45)**	0.000(0.07)
Observations	2403	1142	1050
R-squared	0.40	0.38	0.34

DISCUSSION

Significant impact of the CFPR/TUP programme on food, energy and nutrient intake of the beneficiaries has been restated in this paper. However, the major finding of this study is the sustainability of this impact. Generally speaking, the improvements in their diet during the 2-year support phase are sustained after 2 years from the end of the programme. While the gain in quality of diet may have faltered a bit, an incremental effect on energy intake during post-programme period was observed. However, how much of the gains and sustainability are due to improved livelihood and participation in microcredit after 2-year support cycle is an issue of further investigation.

One has to consider that fact that the CFPR/TUP programme is designed to address the food insecurity of the ultra poor in an indirect manner. The relation between economic development and food consumption is well documented. Studies suggest that improved economic condition is likely to increase food and nutrient consumption (Hulshof 2003, Thang 2004). Different livelihood interventions such as poultry production programme in Bangladesh (Nielsen 2003), goat development programme in Ethiopia (Ayele 2003), animal food production programme in Vietnam and Thailand (Hop 2003, Smitasiri 2003) made significant improvement in food intake of the participants. Impact of CFPR/TUP programme on food consumption at the end of programme cycle is consistent with other 'successful' social safety programmes (Haseen 2006). Immediate impact after intervention is the main concern for most of the time. However, it is sustainability, which matters more to justify the interventions. This study shows that the improvements made by the beneficiaries of CFPR/TUP programme are able to sustain the achieved progress at least two years after the intervention phase is over.

The asset transfer method seems quite successful in increasing and sustaining the nutritional level of the beneficiaries while direct food supplements, such as IGVGD[6], yielded immediate results but suffered in sustainability front (Hashemi, 2001). The amount of food consumption (in gram) of the SUP has not changed much in 2 years from the end of programme cycle. However, the rise in their calorie intake during that period is a sign of sustained progress.

Having high calorie intake does not necessarily guarantee a household's food security and, therefore, the quality of food needs to be considered as well. Dietary diversity is found to be a strong indicator of food security (Hoddinott and Yohannes, 2002). Increased vegetable consumption has been found to be associated with increased iron, vitamin A, Vitamin C and fibre contents (IIRR Publication 1993). In this regard, the intake of higher number of food items and vegetable in CFPR/TUP participant households suggests an improvement in the nutritional quality. Vegetable is one of cheaper sources of nutrition. There has also been improvement in consumption of more costly and nutritious food items such as fish, meat and pulses. On the other hand, poverty and low income in NSUP have restricted their ability to buy nutritious food (Dowler 1997, James 1997).

Food intake might also be affected by nutrition education aiming at changes in food habits and food choice (Hussain 1996). During intervention period egg consumption was promoted by the programme[7], which resulted in the sharp increase in egg consumption by the SUP at end of the intervention. Over the period when no campaign for egg consumption was available in community, this trend dropped. The campaign could have an effect on both the supply and demand of food products and is one of the possible explanations for the observed hectic changes in egg consumption. A second explanation of the sharp rise in egg consumption in 2004 could be the influence of increased egg production in the village. A good portion of the poultry rearers among SUP changed their enterprise after the first year (Alarakhia and Barua 2005). This rise and fall in egg production is consistent with the rise and fall of egg consumption by the NSUP. There could have been some demonstration effect among the NSUP as well.

Unlike the consumption of egg, other sources of animal food show some consistencies. After a sharp rise in meat and milk consumption between 2002 and

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[6] For details and analytics on the IGVGD programme, see Matin and Hulme (2003).

[7] During the intervention period, the beneficiaries are suggested to consume eggs and they do this in the weekly meetings

2004, the SUP sustained that consumption in 2006. Consistent increase in fish consumption shows the strong preference for this food item in Bangladesh. Their income may have been used to purchase fish. Nielsen (2003) also found such preference of fish in Bangladeshi diet.

Poverty estimates based on DCI and food expenditure show clear improvement between 2002 and 2004 and the improvement further expanded in 2006. We have also seen that 19% and 28% of the beneficiaries were non-poor in 2002, according to their food expenditure and calorie intake respectively. However, studies of targeting effectiveness of CFPR/TUP showed that the community defined ultra poor are much worse-off than the households belonging to the wealth rank just above the bottom one and even the NSUP are better-off than the SUP (Matin and Halder 2004 and Sulaiman and Matin 2006). Despite the facts, about a quarter of the SUP being categorized as non-poor by their food intake raise concerns over targeting efficacy. This discrepancy between calorie intake and participatory wealth ranking might be partially be reflecting that food intake is not the only indicator of poverty. Errors in estimation can also be one of the causes of this inconsistency.

Proportionately more consumption of cereals in 2006 indicates that poor households cannot continue their selection of a balanced diet. The drop in the percentage of energy from cereals between 2002 and 2004 was an encouraging indication that SUP households were modifying their dependence on cereals in their diet in line with the recommendation (NNC 1999). However, in 2006 the same trend was not observed. This could be an issue to worry about given that higher dependence on cereal has negative consequences on health. Loss of nutritional knowledge could be the cause of this downfall in food quality. After the intervention household's members might also be more interested to satisfy their own choice than translating the knowledge into practice. Rice is the most popular food in common food dish and it came in large amount in programme intervention households. Therefore, continuous education on nutrition may be needed to sustain the change in their food habit.

Fruit consumption increase dramatically after intervention, which can be explained by economic capacity and nutrition education. However, this trend was not stable in 2006; the average consumption of fruits went down in 2006 from 2004 in both types of households. Fruits consumption in poor households is usually influenced by seasonality (Jaochim 1997, Zeitlin 1992). Due to lower cost and good taste, jackfruit is the most commonly eaten fruit in the survey area during the time of data collection. According to the local information jackfruits production was lower in 2006 and that may have affected the average fruit consumption in SUP and NSUP households.

It is assumed that the children received direct benefits from the nutritional recommendation that their family received (Black 2005). In our study we did not find the same influence on the consumption of under-5 children. Food and nutrient consumption of this age group did not improve with the economic development in SUP households. However, we found significant positive changes among the individuals of other age groups.

No impact on the under-five children is a serious cause of concern since most of the poverty is intergenerational in nature. Haseen (2006) also raised concern over this issue. However, bias against this age group is not easily conceivable since people thrust to give the best they can afford to their children. To look at this issue, we took the (as discussed in the section on intra-household distribution) difference between 'actual share' and 'equitable share' as the proxy of discrimination to an individual. Therefore, positive value means a positive 'discrimination' and vice versa.

Regression results contradict with the notion of discrimination against the under-five children. In fact, it is the adults (15-65 years old) who have a lower intake than 'desired'. Therefore, what is wrong with the absence of improvement in food intake of under-five children. Several underlying facts are probably generating these results. If both the SUP and NSUP are trying to give adequate and best food to their babies, a difference in difference may fail show any impact. Moreover, it was also observed that households with under-five children have lower level of income and food intake (results not shown). Such pattern is plausible given that a) ultra poor households usually depend on income from all the adult household members and the mother with an infant cannot afford to work, b) infants often require different non-food expenses creating pressure on food expenditure, and c) after child care the mother may not give enough time to cooking food.

Besides the age groups, the female variable shows the discrimination against women in the ultra poor households. Resource allocation from gender perspective has concluded that women face discrimination in food allocation (Kabeer 1998). On the contrary, Pit et. al. (1990) have shown that extreme poor households in Bangladesh are inequality averse and differences in food distribution reflect the energy intensities of activities. In a recent study, using the

ratio of share of food to share of energy, Rahman (2002) showed the persistence of inequality. If there is indeed a bias against women, the ultra poor are likely to be the group to look for it.

By exploring the determinants of sustainability, some remarkable things have come up which deserve some discussions. Change in calorie intake in two years after the end of programme depends largely on the change achieved during the intervention period. However, they have a negative association. Randomness of the differences in calorie intake by specific households in different periods can yield a negative coefficient. It might also be an indication of the possibility of a plateau. Positive coefficients of earner-member ratio and level of education in the household is expected. Since acute food shortage is one of the major crises for the ultra poor households, self-perceived change in crisis coping ability demonstrates a positive relation with change in food intake. However, it is somewhat surprising that households acquiring productive assets are likely to observe a decline (or smaller increase) in food intake. Given the consumption-investment trade-off the SUP face after 'graduation', such association is conceivable if they prefer longer-term 'asset-smoothing' over 'consumption-smoothing' (Zimmerman and Carter 2003).

Whether the SUP was participating in microcredit in 2005 did not have a significant relation with the outcome variable. These findings may indicate that access to loans has differential effects on food consumption and nutritional status. However, there are numerous evidences from Bangladesh and other countries like Bolivia, Ghana, Burkina Faso and Mali where precipitation in credit have demonstrated positive health impacts including household food security (Dunford 2001; Pitt 1998). Since it takes a while for extracting benefit from microfinance participation, the impact of subsequent 'graduation to microfinance' needs to be explored in future.

While this paper has shown some evidence of improvement and sustainability of food intake among the CFPR/TUP beneficiaries, the strength of the findings needs to be illuminated. Care was given to deal with several pitfalls, which could have polluted the results, such as methodological changes, changes in the consumption of food products and changes in food preferences. Therefore, we used panel data and there was a fair level of standardization of research method, training and procedures. Since seasonal variations affect food consumption (Tetens 2003, Abdullah 1985), the surveys in all three waves were conducted in the same season with a variation of not more than 2 weeks. Therefore, it is unlikely that seasonality has

played any role on the observed changes. In addition to seasonal variation, natural disasters like floods and cyclones, or extraordinary high yield from agriculture due to favourable natural conditions may influence consumption. For this we referred to the information collected from the local community members in all the three years. According to them, theses were ordinary years in terms of production and harvest of main crops in the survey areas. However, in 2004 a flood occurred in the study area. Since data collection was over before the incidence, it should not influence the results.

As at baseline food consumption data were collected using 3-day recall, the same procedure was followed for the next two surveys. However, long time (3 days) recall may not be accurate. This recall method relies on the ability of the respondents to accurately remember and quantify the amount of their food intake. This problem can be minimized if the time period between the actual food intake and its recall is short. The 24-hour dietary recall is the most common method, which attempts to obtain a complete description of all foods eaten during the 24 hours preceding the interview (Willett 1998). Some studies have suggested that 24-hour recall can be used instead of the weighting method (Ferguson 1989, 1994). Even it can reliably and accurately measure usual intake of major nutrients and food groups among ultra poor households (Haseen 2006). Therefore 24-hour recall method was used in 2004 and 2006 for collecting data from the same households to cross-validate the limitation of 3-days recall. Both the procedures show similar level of impact and sustainability.

The inability to randomly assign participations to intervention and control groups is a problem common to programme evaluation. However, to minimize this limitation, different estimations were done which are used in quasi-experimental research. Another study limitation is the relatively small sample size, which limited the ability to detect differences between districts.

Issues for further analysis

Findings of this paper establish the extent of sustainability in food consumption gained by the SUP. However, some patterns in their consumption behaviour have been observed which are not quite at par with our general understanding. We present few such patterns that should be looked at more rigorously in future research on consumption behaviour of ultra poor.

Share of cereal does not fall

On average, calorie intake of the beneficiaries has increased consistently from 2002 onwards (as in Figure 1). However, share of cereal in total energy intake did not show any consistent pattern. Their additional calorie from 2004 to 2006 has come from consuming more cereals resulting in increased share of cereal. Regression with household fixed effects shows an 'inverted-U' relationship between total calorie intake and share of cereal among the beneficiaries (Table 15). If the objective of a programme for ultra poor is not only to increase the calorie intake but also the quality of calorie, existence of such food preferences should be taken into account.

The inverted-U relationship is slightly at odds with the finding that share of cereal for SUP decreased remarkably in 2004 before increasing again in 2006 while average calorie intake increased consistently. Significant lower level of reliance on cereal in 2004, as

also shown in column 2 of Table 15, demonstrate the direct programme efforts to ensure balanced diet among the participants through awareness and observations.

Higher expenditure may mean lower calorie intake

Relevant to the previous concern, the relationship between food expenditure and calorie is not unambiguous. Expenditure elasticity of calorie is not necessarily always positive. Based on the following regression, Figure 3 presents the fitted values of calorie.

$$Lnpccal = 6.17 + 0.07 \; lnpcfexp + 0.45 \; lnpcfexp^2 - 0.09 \; lnpcfexp^3 (24.87)(0.19) \qquad (2.71) \qquad (3.74)$$

The figure shows that further increase in food expenditure after a certain level may result in lower calorie intake. However, nutrition or quality of food can increase though calorie intake gets reduced.

Table 15. Determinant of share of cereal in total energy

	Equation – 1	Equation - 2
Per capita adult equivalent calorie	0.011 (2.77)**	0.014 (3.75)**
(Per capita adult equivalent calorie)^2	-0.0001 (2.49)*	-0.0001 (3.14)**
Year$_4$ (1=year 2004, 0=otherwise)	-	-7.247 (7.04)**
Year$_6$ (1=year 2006, 0=otherwise)	-	-3.776 (3.57)**
Constant	69.740 (16.74)**	69.097 (17.49)**
Observations	507	507
Number of households	169	169
R-squared	0.04	0.16

Note: Regressions include only the SUP households. Robust t statistics in parentheses
* significant at 5%; ** significant at 1%

Figure 3. Expenditure elasticity of calorie intake
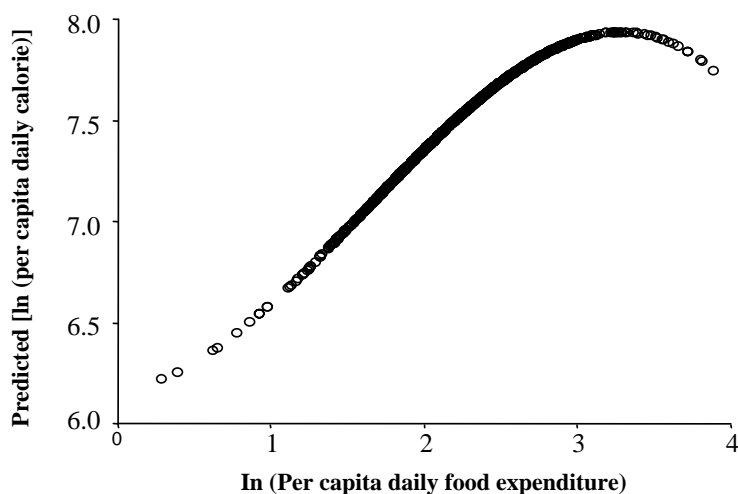
CONCLUSION

The results of this study suggested that CFPR/TUP programme not only increase food, energy and nutrient consumption among the beneficiaries but also the beneficiaries are able to make this improvement sustainable. Programme may have an important impact on the long-time effect on nutritional status, well-being and food security. Future research and evaluation of CFPR/TUP should assess long-term sustainability. In addition, future studies should investigate how a programme such as the CFPR/TUP changes women's empowerment and whether it also affects their share in the household's food distribution. Such information can be used to design strategies to promote equal sharing of benefits within households and to strength households food security and the empowerment of women in future programmes.

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Annex 1. Estimates of propensity of participation

Determinants of programme participation

Factors in 2002		
Household size	0.096	(1.25)
Number of adult male earner	-0.391	(1.94)*
Adult women selling labour	0.252	(1.56)
Land <5 decimal	0.426	(1.69)*
Female headed household	-0.130	(0.54)
Per capita food expenditure	-0.041	(1.63)
Child involved in labour market	-0.355	(1.43)
Have no adult and able woman	-0.089	(0.51)
Have NGO participation	-2.069	(4.02)***
Highest education achieved by any member	0.053	(1.04)
Use sanitary latrine	0.969	(1.06)
Change in economic status in the previous year (1=deteriorated, 2=no change, 3=improved)	-0.334	(2.58)***
Can arrange at least two meals a day (1=yes, 0=otherwise)	-0.411	(2.31)**
Number of *sharees* owned by the main woman	0.206	(1.32)
Everyone has sandal (1=yes, 0=otherwise)	0.202	(1.13)
Everyone has winter clothing (1=yes, 0=otherwise)	-0.373	(1.46)
Has furniture other than cot (1=yes, 0=otherwise)	-0.246	(1.52)
Number of cows owned	-0.402	(1.15)
Constant	1.246	(1.69)*
Observation	307	
Adjusted r-sq	0.15	

Absolute value of z statistics in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Group by Propensity Score	NSUP	SUP
0.0 – 0.2	22%	11%
0.2 – 0.4	23%	5%
0.4 – 0.6	34%	40%
0.6 – 0.8	20%	37%
0.8 – 1.0	1%	8%